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**SUMMARY OF RESPONSES TO ADDITIONAL
OEPA COMMENTS ENGINEERED WASTE
MANAGEMENT FACILITY SAMPLING AND
ANALYSIS PLAN**

01/17/92

**9
ENCLOSURE**

SUMMARY OF RESPONSES TO ADDITIONAL OEPA COMMENTS 2686

ENGINEERED WASTE MANAGEMENT FACILITY
SAMPLING AND ANALYSIS PLAN
T. Tank

Date Document Issued November 21, 1991
Date Comments Due None Expected /Received OEPA - December 27, 1991
Date Responses Due January 21, 1992
Date Report Due January 21, 1992

Response to Comments [Responses]

1.

Commenting Organization: OEPA	Commentor:
Pg. # Section #	Paragraph # Sent./Line #
Original Comment # 1	
Comment:	The original comment #3, pgs. 2 & 3: The response states that no ARAR or TBC could be presently identified that would prohibit the placement of the EWMF on-property. If the facility is a disposal facility for solid waste, section 3745-27-07 of the Ohio Administrative Code would prohibit location of a disposal facility above a sole source aquifer (see also original comment #6, pg. 5).
Response:	On December 3, 1991, the ARARs that pertain to the EWMF were submitted to OEPA for review and comments were reviewed on January 6, 1992. The subsequent responses to those comments will address the sole source aquifer and OAC 3745-27-07 issues.
Action:	DOE will submit a revised EWMF ARARs list and ARARs comment response document.
2.

Commenting Organization: OEPA	Commentor:
Pg. # Section #	Paragraph # Sent./Line #
Original Comment # 2	
Comment:	The original comment #4, pg. 4. No action is specified for this response. The response to this comment needs to be incorporated into the SAP in order for the reader to have a clear understanding of the document's objectives.
Response:	Comment noted.
Action:	Section 1.0 will be revised to incorporate the comment.

3. Commenting Organization: OEPA Commentor:
Pg. # Section # Paragraph # Sent./Line #
Original Comment # 3

Comment: Original comment #10, pg 10: It would seem in DOE's best interest to have a thorough investigation of both wetlands and endangered species possibly impacted by this facility considering the implications of NEPA on siting. There exists considerable potential for Indiana bats and cave salamanders to exist within the area to be affected by the EWMF. The fact that critical habitat for both of these organisms exists within the study area should be sufficient to justify a more indepth investigation than a "limited survey". See additional comments on the SAP below and the "Biological Sampling Analysis and Resources Report; Tech. Memo 001" (March 1990, ASI/IT).

Additionally, when does DOE intend to conduct the "limited survey" to look for wetlands indicators? Such a survey needs to be conducted during the growing season so that vegetation indicative of wetlands can be identified. DOE should discuss what wetland indicators will result in an off-property wetlands delineation.

Response: The surveys completed previously for the Indiana bat and the cave salamander covered both on and off-property areas, including the EWMF study area. This may not have been clear in the previous comment responses. These studies are sufficient to address concerns about threatened and endangered species at the FEMP and vicinity, see EWMF SAP comment response #8 for additional information. The walkover survey will be conducted in the spring to early summer months and will not include a wetlands delineation. The potential wetlands indicators of hydric soils, hydrophytic vegetation, and wetlands hydrology will be noted, if observed, and appropriate areas recommended for formal onsite delineation in the design phase of the EWMF.

Action: The text will be revised as follows: In Section 4, Page 17, Paragraph 2: Omit the second sentence and add to the first sentence, "...geological characterization, to be conducted in the spring or early summer." Replace the last sentence with "the locations of potential wetlands indicators such as hydric soils, hydrophytic vegetation, or wetlands hydrology will be noted as areas where formal wetlands delineation may be required."

4. Commenting Organization: OEPA Commentor:
Pg. # Section # Paragraph # Sent./Line #
Original Comment # 4

Comment: Original comment #19, pg. 12: When will the "Regional Soils Naturally Occurring Constituents Sampling Plan" be submitted to the agencies for review? This information will be need for evaluating the results of the EWMF sampling effort.

Response: The "Regional Soils Naturally Occurring Constituents Sampling Plan" was submitted for agencies review under the title of the "FEMP Background Sampling Plan" in October 1991 and is presently undergoing revision.

Action: No action.

5. **Commenting Organization:** OEPA **Commentor:**
Pg. # **Section #** **Paragraph #** **Sent./Line #**
Original Comment # 5

Comment: Original comment #27, pg. 16: Sediment sampling is practical even if standing water is not present. Additionally, sediment sampling should be considered due to the potential of some contaminants to accumulate in sediments as a result of runoff from contaminated soils and vegetation.

Response: Since well-defined permanent surface water features do not exist in the proposed study area, "sediment" is not readily distinguishable from soil. The sampling plan does include extensive soil sampling, and the risk assessment will consider soil erosion in the evaluation of risks from potentially contaminated soils.

Action: No change is required in the text.

6. **Commenting Organization:** OEPA **Commentor:**
Pg. # **Section #** **Paragraph #** **Sent./Line #**
Original Comment # 6

Comment: Original comment #32, pg. 17: Justification for the use of uranium as the sole analyte should be incorporated into the document.

Response: Uranium will be analyzed because it is the most abundant and widely distributed contaminant at the FEMP. This will be made clear in the text. Other constituents will be analyzed if they are found in soils at sufficient levels to be of concern for ecological risk.

Action: In Section 4, Page 17, Section 4.5.2, next-to-last line, after "total uranium," add "because uranium is the most abundant and widely distributed contaminant at the FEMP."

7. **Commenting Organization:** OEPA **Commentor:**
Pg. # **Section #** **Paragraph #** **Sent./Line #**
Original Comment # 7

Comment: The original comment #43, pg. 21: The response to this comment failed to consider the placement of untreated wastes into the EWMF as is suggested in DOE's response to Ohio EPA original comment #4, pg. 4 of this document. Under which RI/FS

program will the interaction of untreated wastes with other wastes and the facility be tested?

Response: Any potential interaction of untreated waste with the facility will be addressed during Title I/II design when more information on the concrete mix formulation of the EWMF structure will be developed. The present plans also call for the inside walls of each facility to be double lined and each facility will contain a leachate collection system. The interaction of untreated waste with other waste is not anticipated. Each facility will be divided into separate cells allowing separation of potentially incompatible materials and most of the waste will be containerized and/or treated. The potential for incompatible conditions however, will always be considered.

Action: No action.

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8. **Commenting Organization:** OEPA **Commentor:**
Pg. # 18 **Section # 3.4** **Paragraph #** **Sent./Line #**
Original Comment # 1

Comment: Attachment 2. "Radon-226" and "Radon-228" should be corrected to read Radium-226 and Radium-228 respectively.

Response: Comment noted.

Action: Text will be revised to incorporate comment.

9. **Commenting Organization:** OEPA **Commentor:**
Pg. # 20 **Section # 3.4** **Paragraph # Second** **Sent./Line #**
Original Comment # 2

Comment: Ohio EPA does not understand why it would be impractical to obtain data on sediment contamination within the study area. Sediments will accumulate in specific areas during episodic runoff events even if standing water is not present. Contaminants likely to bind with clay or silt particles may tend to accumulate and concentrate in areas of sediment deposition. DOE should consider conducting sediment sampling to determine any such effect caused by runoff in the study area.

Response: As stated in the response to General Comment 5, since well-defined permanent surface water features do not exist in the proposed study area, "sediment" is not readily distinguishable from soil. The sampling plan includes extensive soil sampling, and the risk assessment will consider soil erosion in the evaluation of risks from potentially contaminated soils.

Action: No action.

10. **Commenting Organization:** OEPA **Commentor:**
Pg. # 21 Section # 3.5 Paragraph # Sent./Line #
Original Comment # 3

Comment: Table 6. Number of Samples, 1): DOE should include in the document a justification for collecting tree samples only in the wooded portion west of the north entrance. Why are no samples being collected from the pine plantation? DOE should discuss whether hardwood trees are more likely to accumulate uranium than are the pines or if this was an arbitrary decision. It would seem that the pines might be more susceptible to airborne contamination due to the ordinary presence of sap on the trees.

Response: Samples will also be collected from the pine plantation. "West of the north access road" indicates the currently used road terminating at the northeast corner of the FEMP, not the old, unused road terminating near the center of the northern boundary. This will be clarified by changing "north access road" to "northeast access road."

Action: Change "north access road" to "northeast access road" in Table 6, Section 3, page 21 and Section 4.5.1.

11. **Commenting Organization:** OEPA **Commentor:**
Pg. # 21 Section # 3.5 Paragraph # Sent./Line #
Original Comment # 4

Comment: Table 6. Number of Samples, 2): DOE should discuss when the "walkover survey" will be conducted. The time of year during which the survey is conducted will weigh heavily upon what is learned from the survey. what evidence of wetlands will DOE use as the trigger for completing a wetlands delineation?

Response: The walkover survey will be conducted in the spring to early summer months and will not include a wetlands delineation. The potential wetlands indicators of hydric soils, hydrophytic vegetation, and wetlands hydrology will be noted, if observed, and appropriate areas recommended for formal onsite delineation.

Action: Text will be clarified, as noted in response.

12. **Commenting Organization:** OEPA **Commentor:**
 Pg. # 22 Section # 3.5 Paragraph # Last Sent./Line #
 Original Comment # 5
- Comment:** **Surface water features need not be permanent to provide an exposure pathway for ecological receptors. Temporary or episodic surface water features are utilized by a number of ecological receptors including but not limited to amphibians for breeding in the spring.**
- Response:** Comment acknowledged. However, the absence of streams and ponds in the proposed study area indicates that surface water is not likely to be a significant pathway for exposure of ecological receptors. Note that potential runoff exposures will be considered in evaluating the likelihood of soil erosion from the study area. (See Comment 5).
- Action:** No action.
13. **Commenting Organization:** OEPA **Commentor:**
 Pg. # 12 Section # 4.3.2 Paragraph # First Sent./Line #
 Original Comment # 6
- Comment:** **The intent of the first complete sentence on page 12 is not clear. DOE should not be sampling for HSL constituents from samples which have been archived for held for any periods of time. VOC and semivolatile samples should be collected immediately upon retrieval of the sampling device.**
- Response:** Section 4.3.2, Geochemical Sample Collection and Analysis, does not specify or require any HSL analysis. The samples will be analyzed for CEC, TOC, and mineralogy only.
- Action:** No action.
14. **Commenting Organization:** OEPA **Commentor:**
 Pg. # 16 Section # 4.5 Paragraph # Sent./Line #
 Original Comment # 7
- Comment:** **Figure 7. The proposed area of ecological characterization should include an area encircling the EWMF study area by 1000 feet. The ecological study cannot be limited to the north and east boundaries. Surface water runoff and fugitive emissions will result in the effected regions not being limited to areas perpendicular to the north and east boundaries. Additional off-site areas should be addressed in the direction of Paddys Run and to the south of the study area.**
- Response:** The study area for the ecological characterization will be extended to the off-property area south of Willey Road and west across Paddys Run. The study does not include on-property areas because the Miami University study by Facemire et al. provides sufficient

characterization of on-property habitats and an on-property wetlands delineation has been completed as part of the RI/FS.

Action: The text will be revised as follows: In Section 3.5, Page 20, Paragraph 3, last sentence, change "areas to the east and north" to "off-property areas."

In Section 3, Page 21, Table 6, change the first sentence of item 2 of the "Number of Samples" activity to read "An off-property ecological characterization survey will cover an area consisting of a 1000-foot wide zone parallel to the EWMF study area boundary." Change the last sentence of item 2 to read "The locations of potential wetlands indicators such as hydric soils, hydrophytic vegetation, or wetlands hydrology will be noted as areas where formal wetlands delineation may be required."

Revise Figure 7, Chapter 4, to extend the ecological characterization 1000 feet south of Willey Road adjacent to the EWMF study area, and west to Paddys Run Road along the northern boundary of the FEMP.

In Section 4, Page 14, Section 4.5, Line 2, omit "east and north".

15.	Commenting Organization: OEPA	Commentor:	
	Pg. # 17	Section # 4.5	Paragraph # Second
	Original Comment # 8		Sent./Line #

Comment: As stated in the above comments on DOE's responses, DOE should conduct a more indepth investigation than a "limited survey" for endangered species. This information will be necessary in determining NEPA compliance as well as compliance with the Endangered Species Act as a potential ARAR. The need for this investigation is supported by previous DOE work (Biological Sampling Analysis and Resources Report) which states potential habitat for both the endangered Indiana bat and the Cave salamander exist within the area to potentially be affected by the EWMF construction. The ASI/IT report (March, 1990) states, "... that all habitat classified as good must be considered to have high potential for containing these bats,...". Excellent and good habitat for the Indiana bat lie within or near the EWMF study area when comparing Figure 3-4 from ASI/IT (March 1990) to Figure 7 in the EWMF SAP. All of this information points to the fact that DOE will need additional investigations to decide NEPA and Endangered Species Act compliance.

Response: Agree that the use of the terms "limited survey" in reference to an investigation for endangered species is inappropriate. Detailed surveys for the Indiana bat and the cave salamander have been completed which covered both on- and off-property areas, including the EWMF study areas. These studies are sufficient to address concerns about threatened and endangered species at the FEMP and vicinity. This may not have been clear in the previous comment responses. These studies will be included in the Site-Wide Characterization Report.

Action: No action.

16. **Commenting Organization:** OEPA **Commentor:**
Pg. # 17 **Section #** 4.5.2 **Paragraph #** Last **Sent./Line #**
Original Comment # 9

Comment: A clear objective needs to be defined for collecting tree samples for uranium. Table 6 defines the objective to be, "Evaluate the potential environmental impacts and ecological risks of removal and disposal of trees (if shown to be contaminated) from the EWMF study area." If disposal characterization is the goal, then it would seem core samples would provide the best data as to the average concentration of uranium in the tree (since the largest mass of the tree will be tied up in the trunk and branches not twigs and leaves). If determining baseline conditions in the trees prior to construction of the EWMF is the goal then possibly twigs and leaves are the preferred tissue (since this tissue is most likely to reveal short-term changes in concentration). An additional factor which must be considered in determining the tissue to be sampled is the fact that airborne emissions of uranium have significantly been reduced in the past few years. Will this fact effect the ratio of uranium concentration in twigs and leaves to that in the trunk and large branches (i.e., would previous airborne deposition of uranium on the plant result in a higher concentration of uranium in older plant tissue)?

Response: The commentor's point is well taken. However, as stated previously, in response to OEPA Comment 49 in their first review of this document, it is important for comparative purposes that the data collected for this study use established methods to achieve the goal of determining baseline conditions of the trees. A preliminary survey of the literature on radionuclide uptake by trees indicates that leaf and twig tissue is more commonly sampled than are wood cores. This is true for both uranium and other radionuclides. In order that the EWMF study proceed on schedule, the tree sampling protocol should not be altered at this time. However, the sampling plan already recommends further tree sampling if hazardous constituents are found in soil at concentrations likely to result in significant uptake by trees. Based on the results of this SAP, additional analysis may potentially be performed, as part of the EWMF Title I/II design phase, when disposal procedures for cleared vegetation will be developed.

Action: No action.

17. Commenting Organization: OEPA Commentor:
Pg. # 5 Section # Paragraph # Sent./Line #
Original Comment # 10

Comment: **Appendix A, Table A.1. Additional analytes which need to be included in this test are Antimony as well as organic constituents of concern. Cementation/Stabilization will not necessarily bind organic constituents and the leachability of these contaminants over extended periods of time needs to be assessed. Antimony is an inorganic constituents of concern in a number of the waste streams and needs to be addressed in this analysis.**

Response: Antimony, which occurs naturally in Kentucky/Ohio regional soils in the < 1 - 8.8 ppm range, is not a constituent of concern at the FEMP. Previous analytical results obtained from the OU1 pits found no detectable amounts of antimony in Pits 1, 2, 3, 4, 6, Burn Pit and Clearwell. One sample in Pit 5 yielded an analytical result of 8.8 ppm. Therefore, out of the 33 samples taken from the OU1 pits only one analysis indicated antimony. That analysis was within the background range for regional soils, and for risk assessment procedures, is disregarded as an outlier.

Organic constituent data will be obtained from the TCLP extractions from the waste forms in the OU1 Treatability Study.

Action: No action.